

In re Patent Application of:  
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This and other objects, advantages and features in accordance with the present invention are provided by a method of encoding data in a solid state image sensor comprising an array of pixels. The method preferably comprises applying color processing to the array of pixels, with the array of pixels comprising a plurality of border pixels. The method preferably further comprises varying the color processing applied to the plurality of border pixels for encoding data therein.

In one approach for the color processing, the color processing is applied by applying a color filter mosaic to the array of pixels. The color processing is varied by varying a pattern of the color filter mosaic applied to the plurality of border pixels. The color filter mosaic may comprise color filter material, and variation of the pattern of the color filter mosaic comprises removing the color filter material from selected border pixels. The color filter mosaic may also comprise a plurality of color filter layers, and variation of the pattern of the color filter mosaic comprises applying the plurality of color filter layers to selected border pixels.

The color filter mosaic may comprise a Bayer pattern color filter mosaic that is based upon a plurality of color filter elements. Variation of the pattern of the color filter mosaic comprises encoding one bit of binary data in two adjacent blocks of four pixels of the Bayer pattern color filter mosaic by varying the color filter elements applied to one pixel of one of the two adjacent blocks.

In another approach for the color processing, the color processing is applied by applying a microlens array to

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the array of pixels. Variation of the color processing comprises varying a pattern of the microlens array applied to the plurality of border pixels.

The method according to the present invention advantageously allows reference data to be encoded in the border pixels instead of within the chip circuitry. It is not practical to record such data in the chip circuitry during manufacture of an image sensor since the details of the subsequent color processing may not be known at the time of manufacture. The encoded data may include a color process code, a mask revision code, a product code, and at least one of a start code and an end code.

Another aspect of the invention is directed to a method of reading data encoded in a solid state image sensor comprising an array of pixels. The data has been encoded in the solid state image sensor by applying color processing to the array of pixels, with the array of pixels comprising a plurality of border pixels, and by varying the color processing applied to the plurality of border pixels for encoding the data therein. The method comprises illuminating the array of pixels, and processing signals output from the plurality of border pixels, with the signals corresponding to the encoded data.

Yet another aspect of the present invention is directed to a solid state image sensor system comprising an array of pixels comprising a plurality of border pixels, with the plurality of border pixels having data encoded therein by color processing. --

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